

**IDAHO**  
**DEPARTMENT OF FISH AND GAME**

Jerry M. Conley, Director

FEDERAL AID IN SPORT FISH RESTORATION  
FISHERY MANAGEMENT PROGRAM  
F-71-R-20

**ANNUAL FISHERIES MANAGEMENT  
PERFORMANCE REPORTS\***

**1995**



Project I.	Surveys and Inventories
Project II.	Technical Guidance
Project III.	Habitat Management
Project IV.	Population Management
Project V.	Coordination

\*Copies of complete reports available from IDFG, P.O. Box 25, Boise, Idaho 83707

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**This document contains abstracts of reports for the five projects under the Federal Aid in Sport Fish Restoration grant F-71-R-20, Fish Management. Abstracts are provided by subproject for each of eight Administrative/Management regions within the state. No work was reported for Subprojects 111-B, III-C, 111-D, and III-E. Project V (Coordination) has no subprojects.**

**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
PANHANDLE REGION (Subprojects I-A, II-A, III-A, IV-A)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
<b>Job a.</b>	<b>Panhandle Region Mountain Lakes Investigations</b>
<b>Job b.</b>	<b>Panhandle Region Lowland Lakes Investigations</b>
<b>Job c.</b>	<b>Panhandle Region Rivers and Streams Investigations</b>
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT III.</b>	<b>HABITAT MANAGEMENT</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**By**

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Bull trout *Salvelinus confluentus* stocked into Revett and Upper Glidden lakes grew a minimum of 136 mm since August 1993. Brook trout *S. fontinalis* condition factors have improved since the introduction of bull trout. In Revett Lake, the condition factor increased from 0.45 to 0.88. In Glidden Lake, the condition factor for brook trout less than 180 mm decreased from 0.98 to 0.88. However, the condition factor for brook trout greater than 180 mm increased from 0.74 to 0.88.

Hatchery stocking evaluations were made on Hunt Lake and Parker Lake. Three age classes of cutthroat trout *Oncorhynchus clarki*, age 2 + to 4+ , were sampled in Hunt Lake. The average condition factor for cutthroat trout in Hunt Lake was 0.82 with a size range of 162 mm to 250 mm. Arctic grayling *Thymallus arcticus* sampled in Parker Lake ranged in length from 160 mm to 220 mm and had an average condition factor of 0.85.

Swede Lake was surveyed to determine its suitability for fish stocking. Anglers fishing mountain lakes reported information from four mountain lakes in the Panhandle Region in 1995; Standard, Harrison, Mollies, and Snow lakes. Standard Lake yielded 1 westslope cutthroat trout *O. clarki lewisi* with 1 h of angler effort, Harrison Lake yielded 10 westslope cutthroat trout during 3 h of angling effort, and Mollies Lake yielded 2 cutthroat trout with 0.5 h of angler effort. The angler catch rate in Snow Lake was 3.75 cutthroat trout/h.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

A creel survey was conducted on Hayden Lake from July 1, 1994 through June 30, 1995. Anglers fished for an estimated 85,595 hours. Anglers caught an estimated 52,289 fish for a catch rate of 0.61 fish/h. No fin-clipped cutthroat trout *Oncorhynchus clarki* and very few fin-clipped rainbow trout *O. mykiss* were observed in the creel. It was unclear what was causing the poor return rate for hatchery-reared trout. Possible causes included loss of fish through the outlet, predation, trout strain stocked, and rearing facilities.

Survey questionnaires were mailed to Hayden Lake property owners and handed out to anglers fishing Hayden Lake. Anglers and lake front property owners supported the quality fishery management program on Hayden Lake.

A creel survey was begun on Coeur d'Alene Lake on July 1, 1995 and will be completed June 30, 1996. During the first six months, anglers fished for an estimated 161,725 hours. They caught an estimated 54,941 fish for a catch rate of 0.34 fish/h. Kokanee *O. nerka kennerlyi* provided the most fish caught. Most of the fishing effort was for chinook salmon *O. tshawytscha*.

The estimated population of all age classes of kokanee in Coeur d'Alene Lake was 27.4 million in 1995 based on midwater trawling. This was the second highest population abundance estimate since 1980. Age 2 and age 3 kokanee were very strong year classes and accounted for the high population estimate. Mean length of kokanee spawners was 248 mm and 228 mm for male and female kokanee, respectively.

The number of chinook salmon redds counted in the Coeur d'Alene and St. Joe rivers in 1995 totaled 65. The number of chinook salmon fingerlings stocked into Coeur d'Alene Lake in 1995 totaled 30,200.

The estimated population of all age classes of kokanee in Pend Oreille Lake was 9.99 million fish in 1995 based on midwater trawling estimates. Simrad hydroacoustic estimates for all age classes of kokanee in Pend Oreille Lake in 1995 was 12.77 million fish.

The estimated population of all age classes of kokanee in Spirit Lake was 281,000 fish in 1995 based on midwater trawling estimates.

Simrad hydroacoustic surveys were conducted on Priest and Upper Priest lakes in 1995 in an attempt to make a population estimate for lake trout *Salvelinus namaycush*. The estimated number of lake trout (sonar targets identified as fish 330 mm and greater in length) in Priest Lake was 35,547. Limited data precluded the estimate of fish abundance in Upper Priest Lake.

In 1995, 245 lake trout from Priest Lake were tagged with reward and non-reward floy tags. Three tags were returned in 1995. One of these tags was from a fish floy tagged in 1995; the other two tags were from fish floy tagged in 1988 and 1990.

The largemouth bass *Micropterus salmoides* populations in Swan, Black, and Rose lakes appear to be balanced with Proportional Stock Density (PSD) values of 16, 66, and 24, respectively. The early July sampling may have biased these estimates. Bluegill *Lepomis machrochirus* in Rose Lake appear to be reproducing. The mean back-calculated lengths for bluegill appeared to be in the lower range but are comparable to Montana, South Dakota, and Oregon.

A bluegill introduction to Kelso Lake in 1984 (400 fish) has established a self-reproducing population and expanded their range into Little Round Lake as well. PSD's for bluegill in Kelso and Little Round were 26 and 59, respectively.

Tiger muskie *Esox lucius x E. Masquinongy* introductions into Freeman Lake (1989-1991 and 1993) have yielded numerous reported angler catches. In 1995, gill net sampling of Freeman Lake captured one tiger muskie from the 1993 stocking that measured 510 mm.

Net pen releases of age 1 westslope cutthroat trout *O. clarki lewisi* in Pend Oreille Lake in 1995 totaled 61,588 fish.

Impromptu creel survey data was collected on Panhandle Region waters by conservation officers. Officers interviewed a total of 4,583 anglers who spent 13,795 hours fishing on 51 lowland lakes in the region.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Westslope cutthroat trout *Oncorhynchus clarki* densities estimated from snorkeling transects in the catch-and-release sections of the North Fork Coeur d'Alene, Little North Fork Coeur d'Alene, and St. Joe rivers were 80, 5, and 277 trout/ha, respectively. In the catch-and-keep sections of the same streams, densities were 50, **5**, and 35 trout/ha, respectively.

The number of trout estimated by electrofishing the St. Joe River catch-and-release transect was 318 trout/ha, or 780 trout/km (1,249 trout/mile).

In the Pend Oreille drainage, 320 bull trout *Salvelinus confluentus* redds were counted in 1995. Twelve bull trout redds were counted in the Upper Priest Lake drainage in 1995. Seventy-three bull trout redds were counted in the upper St. Joe River drainage in 1995.

The number of kokanee *O. nerka kennerlyi* spawners counted in Smith, Boundary, Long Canyon, and Parker creeks in 1995 was 0, 1, 10, and 1, respectively. Impromptu field checks of the effort and harvest of 384 anglers by conservation officers on streams in the Panhandle Region is summarized.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project II: Technical Guidance

Subproject II-A: Panhandle Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Panhandle Region fisheries management personnel provided private individuals, organizations, public schools, and state and federal agencies with technical review and advice on various projects and activities that affect the fishery resources in northern Idaho. Technical guidance also included numerous angler informational meetings, presentations, letters, development of the Panhandle Region portion of the 1-800-ASK-FISH program, and fishing clinics.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project III: Habitat Management Subproject III-A: Panhandle Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Filter fabric weed mats were laid down next to the fishing dock at McArthur Reservoir in 1995 to create weed-free fishing areas for bank anglers.

Additional rocks were placed in the rock check dam on Yellowbanks Creek, a tributary to Hayden Lake, in April of 1996 to enhance passage for westslope cutthroat trout *Oncorhynchus clarki lewisi*.

Permit applications, site survey, and planning were completed on the Sullivan Springs kokanee *O. nerka* kenner/yi/bull trout *Salvelinus confluentus* spawning channel in 1995 and 1996.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project IV: Population Management

Subproject IV-A: Panhandle Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Fish populations and fishing in the Panhandle Region were enhanced by stocking approximately 15.2 million fry and fingerling fish and 184,100 catchable size trout.

No waters in the Panhandle Region were renovated with rotenone during this contract period.

Hatchery personnel and volunteers stocked 31 mountain lakes in the Panhandle Region in 1995. Species stocked included westslope cutthroat trout, domestic Kamloops and Hayspur strain rainbow trout *O. mykiss*, brook trout, and Arctic grayling. No golden trout *O. aguabonita* were stocked in 1995 in the Panhandle Region.

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**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
CLEARWATER REGION (Subprojects I-B, II-B, IV-B)**

- PROJECT I. SURVEYS AND INVENTORIES**
  - Job a. Clearwater Region Mountain Lakes Investigations**
  - Job b. Clearwater Region Lowland Lakes Investigations**
  - Job c. Clearwater Region Rivers and Streams Investigations**
- PROJECT II. TECHNICAL GUIDANCE**
- PROJECT IV. POPULATION MANAGEMENT**

**By**

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Forty-four mountain lakes were surveyed in the Clearwater National Forest during July-September 1995. Seventeen lakes were barren of fish, and of the remaining 27, 9 support abundant, stunted brook trout *Salvelinus fontinalis* populations. Only five of the surveyed lakes have been stocked in recent history, and three (Beaver, Rudd-Moore, and Fire lakes) will be reinstated to the three-year rotation stocking schedule. East Colt Creek and Moore lakes will be resurveyed in 1998 to determine if natural reproduction is adequate to sustain a fishable size population.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Clearwater Region fisheries management personnel sampled Spring Valley Reservoir on May 19, 1995. Species composition was 66% largemouth bass *Micropterus salmoides* (n = 705), 31 % bluegill *Lepomis macrochirus* (n = 333), 3% black crappie *Pomoxis nigromaculatus* (n = 32), and < 1% black bullhead *Ameiurus melas* (n =1). Additional electrofishing, targeting only largemouth bass and black crappie, was done on May 16 and 18. All bass captured over 200 mm were tagged to provide a multiple census population estimate. Bass over 300 mm (legal size) were tagged with five dollar reward tags to estimate angler exploitation. Proportional Stock Density (PSD) for largemouth bass was 57.4. We estimated the population of largemouth bass 200 mm and larger at 150. Of these, 130 were 300 mm and larger. Anglers returned 21 % of the reward tags.

Standard survey in Elk Creek Reservoir on May 23 and 24 describes a fish community dominated by six species of game fish and one species of non-game forage; reidside shiner *Richardsonius balteatus*. Relative abundance of brook trout *Salvelinus fontinalis* has increased from 5% of the sample in 1992 to 28.4% in 1995. Relative abundance of largemouth and smallmouth bass *M. dolomieu* have remained similar, while reidside shiners and black bullhead have declined since 1992.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Clearwater Region fishery management personnel snorkeled 126 stream transects within the Clearwater, Salmon, and Snake River drainages. Chinook salmon *Oncorhynchus tshawytscha* juvenile numbers continued to be at low levels throughout the drainages sampled. Fourteen adult chinook salmon redds were counted in traditional spawning ground counts in the Lochsa and Selway rivers. One hundred and six hatchery origin rainbow/steelhead trout *O. mykiss* were collected from the three main rivers in the region. Diet analysis revealed fish in five of the stomachs. These fish were primarily juvenile crappie *Pomoxis sp.* with one fish unidentified. Management personnel captured and PIT-tagged 54 white sturgeon *Acipenser transmontanus* from the Snake River and 2 from the Salmon River. An angler creel survey conducted on the North Fork Clearwater River above Dworshak Reservoir estimated anglers fished 64,542 hours to catch 28,457 fish of which 720 were harvested. Anglers expended an estimated 5,635 hours on the roaded section of Kelly Creek to catch and release 14,991 fish.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project II: Technical Guidance

Subproject II-B: Clearwater Region

Contract Period: July 1, 1995 to June 30, 1996

### **ABSTRACT**

Clearwater Region fishery management personnel offered technical guidance to 18 state, federal, and tribal agencies and 47 private entities on timber sales, mining, stream channel alterations, hydropower development, farm pond permits, and other proposed activities. We sponsored or co-sponsored 12 youth fishing clinics throughout the region on Free Fishing Day. We also sponsored youth educational clinics for fly fishing and steelhead trout fishing. We produced and printed informational brochures on fishing the Selway and Lochsa rivers.

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## '1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project IV: Population Management

Subproject IV-B: Clearwater Region

Contract Period: July 1, 1995 to June 30, 1996

### **ABSTRACT**

Fish population and fishing in the Clearwater Region were enhanced by stocking approximately 345,300 fry and fingerling and 225,600 catchable size fish into lakes, reservoirs, rivers, and streams.

We distributed 333 bluegill, 32 black crappie, and 705 largemouth bass (< 200 mm) from Spring Valley Reservoir to local farm pond owners for private pond stocking.

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**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
MCCALL SUBREGION (Subprojects I-C, II-C, IV-C)**

- |                    |   |
|--------------------|---|
| <b>PROJECT I.</b>  | <b>SURVEYS AND INVENTORIES</b>                              |
| <b>Job a.</b>      | <b>McCall Subregion Mountain Lakes Investigations</b>       |
| <b>Job b.</b>      | <b>McCall Subregion Lowland Lakes Investigations</b>        |
| <b>Job c.</b>      | <b>McCall Subregion Rivers and Streams Investigations</b>   |
| <b>Job d.</b>      | <b>McCall Subregion Salmon and Steelhead Investigations</b> |
| <b>PROJECT II.</b> | <b>TECHNICAL GUIDANCE</b>                                   |
| <b>PROJECT IV.</b> | <b>POPULATION MANAGEMENT</b>                                |

**By**

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Don Anderson, Regional Fishery Manager**

## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

In a cooperative project with the U.S. Forest Service, 20 mountain lakes were surveyed in 1995 to assess fish population status, past stocking strategies, and/or physical habitat parameters.

We collected no fish in Sisters (south) Lake. We collected rainbow trout *Oncorhynchus mykiss* from Cooks, West Duck, Josephine, Shaw Twin (upper and lower), and Crystal Lakes. We collected brook trout *Salvelinus fontinalis* from Loon, Sisters (north), Serene, Upper Hazard, Hard Creek, and Paradise lakes. We collected cutthroat trout *O. clarki* from Lake Rock, Shaw Twin (upper and lower), West Duck, Josephine, Morgan, Coffee Cup, and Serene lakes. We collected bull trout *S. confluentus* from Loon Lake and Disappointment Lake. We also found suckers *Catostomus sp.* in Loon Lake and Coffee Cup Lake.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

In Payette Lake, we conducted the annual kokanee *Oncorhynchus nerka kennerlyi* age class population sampling. We continued both the lake trout *Salvelinus namaycush* reward tagging study and the lake trout sonar tracking study. We also conducted a total angler use and harvest survey in 1995.

We estimated 194,242 age 0+ and 107,929 age 1 + kokanee in Payette Lake in 1995. We tagged an additional 94 lake trout in 1995 with \$ 10.00 reward tags. A total of eight fish were recaptured in 1995, none of which were harvested. There were 128 tagged fish remaining in the lake as of December 1, 1995. By tracking sonar-tagged fish, we located five probable spawning sites. We also found that lake trout in Payette Lake utilize large areas of the lake, intermixing regularly with other lake trout in the same basin. No isolated populations were found in either basin. However, we found that only four of the ten lake trout tracked used both basins, while the other six never left the basin in which they were tagged.

From our creel survey on Payette Lake we estimated that 30,117 angler hours were spent from April 30 through November 11, 1995 to catch 4,692 trout and salmon for a catch rate of 0.14 fish/h.

We set gill nets in Little Payette Lake to monitor fish populations. Rainbow trout *O. mykiss* made up 30.7% of the biomass and 44% by number of all fish collected. Average daily growth rates averaged 0.05 and 0.13 mm for rainbow stocked in 1993 and 1994, respectively.

We fished gill nets a total of 180 net hours in Cascade Reservoir and collected two rainbow trout. We aged smallmouth bass *Micropterus dolomieu* collected by electrofishing. The oldest age class collected were aged at 5 + and averaged 262 mm.

We sampled the smallmouth bass populations in both Oxbow and Hells Canyon reservoirs to monitor the effects of the bass regulation put into effect in January 1992 on Oxbow Reservoir. We found no significant changes in smallmouth bass growth or population structure.

We surveyed Goose Lake and collected 50 rainbow trout, 52 brook trout *S. fontinalis*, 3 cutthroat trout *O. clarki*, and 3 kokanee. A kokanee spawning run was observed in Goose Creek, above the reservoir, in September 1995.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

We estimated the 1995 kokanee *Oncorhynchus nerka kennerlyi* spawning run in the North Fork Payette River above Payette Lake to be 55,446 fish. The run started unusually late with the first fish being observed on September 8, 1995.

We snorkeled four previously established transects on the lower South Fork Salmon River to monitor cutthroat trout *O. clarki* abundance. We found an average of 0.39 cutthroat trout per transect.

We completed standard Idaho Department of Fish and Game stream surveys on four streams; Lodgepole Creek, Warm Lake Creek, Poorman Creek, and Tyndall Creek. Brook trout *Salvelinus fontinalis* were collected from Poorman, Lodgepole, and Warm Lake creeks. Cutthroat trout were collected from Poorman Creek, and rainbow trout *O. mykiss* were collected from Lodgepole and Tyndall creeks. Sand was the dominant bottom substrate in all four streams, with Tyndall Creek being the most heavily impacted at 80%.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fishery Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

McCall Subregion salmon and steelhead investigations are incorporated in separate statewide reports. These reports include "Salmon and Steelhead Investigations," "Salmon Spawning Ground Surveys," "Idaho Supplementation Studies," and "Idaho Habitat/Natural Production Monitoring."

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## **1995 ANNUAL PERFORMANCE REPORT**

State of: Idaho

Program: Fisheries Management F-71-R-20

Project II: Technical Guidance

Subproject II-C: McCall Subregion

Contract Period: July 1, 1995 to June 30, 1996

### **ABSTRACT**

McCall Subregion fishery management personnel responded to more than 200 requests and opportunities for technical input. Comments were provided to state and federal agencies on proposed activities for which they have regulatory authority. Advice and technical assistance were provided for private businesses and the public on activities associated with fish, or having impacts on fish populations or fish habitat. The major topics of involvement included stream channel alterations, mining, and land management planning. We provided data and technical advice to an increased number of fisheries consultants.

We also gave presentations to schools, sports person groups, and civic organizations. We answered many questions from the angling public on fishing opportunities, regulations, techniques, and specific waters.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project IV: Population Management

Subproject IV-C: McCall Subregion

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Horsethief Reservoir was rotenoned to eliminate yellow perch *Perca flavescens*. We completed a Memorial Day weekend creel survey on Horsethief Reservoir. An estimated 3,096 angler hours were spent on Saturday and Sunday to harvest 1,273 fish, 98% of which were trout.

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**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
SOUTHWEST REGION (Subprojects I-D, II-D, IV-D)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
<b>Job a.</b>	<b>Southwest Region Mountain Lakes Investigations</b>
<b>Job b.</b>	<b>Southwest Region Lowland Lakes Investigations</b>
<b>Job c.</b>	<b>Southwest Region Rivers and Streams Investigations</b>
<b>Job d.</b>	<b>Southwest Region Salmon and Steelhead Investigations</b>
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**By**

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Sixty-one high mountain lakes were visited in 1995. Lakes were sampled in the Little Queens River drainage of the Middle Fork Boise River, upper South Fork Payette River drainage, and in the Pinchot and Lake Creek drainages of the upper South Fork Payette River drainage. Gill net sampling only was conducted in 20 lakes, gill net and angling in 12 lakes, angling only in 5 lakes, and observations only in 24 lakes. Thirty-one of 61 lakes contained fish populations. A database was developed to store and retrieve high mountain lake information.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

A regional fisheries database and summary report were developed to assist in organizing and reporting data. The database was developed for personal computers using ACCESS software. Standard report summaries organize data into length frequency by fish species and gear type and also by a standardized unit of effort of one hour of electrofishing, one pair of standard gill nets, and one trap net night. Summary reports were calculated for all lakes and reservoirs surveyed in 1995.

A lowland lakes survey was conducted on C.J. Strike Reservoir on April 17, 1995 with two units of standardized sampling effort. Severe weather hampered the electrofishing effectiveness. Catch-per-unit-effort of smallmouth bass *Micropterus dolomieu* was much lower than the previous 1993 survey. Yellow perch *Perca flavescens* increased dramatically from 12% to 51.6% of the standard catch. Large (>350 mm) rainbow trout *Oncorhynchus mykiss* were less common in 1995.

Four bass tournaments on C.J. Strike Reservoir were monitored in 1995, and the catch measured, weighed, and tagged with numbered Floy trailing tags and released. We tagged 488 fish and had a total of 49 recaptures reported over a 14-month period. No population estimate was made, but with more tagging of fish, an estimate could be made.

A total of 1.4 hours of electrofishing was conducted on May 3, 1995 on Brownlee Reservoir. Electrofishing boats from Idaho Department of Fish and Game (IDFG) and Oregon Department of Fish and Wildlife (ODFW) were used. We captured 372 fish per hour of electrofishing.

A cooperative two-year study on the channel catfish *Ictalurus punctatus* population in Brownlee Reservoir began in 1995 with IDFG, ODFW, and Idaho Power Company biologists participating. Catfish were captured with monofilament gill nets

and angling, and tagged with a Carlin Dangler reward tag and released. Fish length, weight, and location of release were documented. A total of 1,200 catfish were tagged in Brownlee Reservoir and the Snake River. ODFW administered the tag reward program paying out \$5.00 per returned tag. Forty-six tags were returned by January 1996, equaling 3.8% of the tags available. Movement of catfish averaged 22.9 miles upstream and 12.6 miles downstream, with the longest movement 101.9 miles upstream. Length frequencies of channel catfish from different strata of the reservoir were developed.

Bybee, Grasmere, Little Blue, and Shoofly reservoirs were sampled with two trap net nights and one pair of experimental gill nets each on May 23-26, 1995. All reservoirs contain good Lahontan cutthroat trout *O. clarki henshawi* populations. Stocking large fry in June has worked in maintaining these fisheries.

A lowland lake sampling of Manns Creek Reservoir was completed on June 12, 1995. Per a standard unit of catch, black crappie *Pomoxis nigromaculatus* were the most numerous species equaling 49.4% of the catch. Largemouth bass *M. salmoides* were the second highest species in number at 20.7%. No nongame fish were captured. Largemouth bass and black crappie scales were aged, and age analysis was completed.

A lowland lake survey was conducted on Crane Creek Reservoir on June 13, 1995. Four trap nets, two gill net pairs, and one hour of electrofishing was completed. White crappie *P. annularis* were the most numerous species captured, with common carp *Cyprinus carpio* second. Black and white crappie scales were analyzed for growth, and both species exhibited fair to poor growth.

Lake Lowell was electrofished four times in 1995. Catch-per-effort of electrofishing on Lake Lowell was only 42% to 68% of the catch-per-effort at other southern Idaho reservoirs. The lack of age 2 and older bass and age 1 and older bluegill *Lepomis macrochirus* and crappie is disturbing. A conservation bass tournament was conducted to capture adult bass. Sixty anglers in 30 boats fished 1,800 hours to catch 51 largemouth and 2 smallmouth bass. Scales, lengths, and weights were collected and analyzed. A series of water samples were collected at 10 sites bimonthly by regional staff and a class from Eagle High School. Students and water quality experts measured or analyzed 11 water quality parameters.

Electrofishing survey was conducted on Lucky Peak Reservoir on May 16, 1995. A total of 1.1 hours of energized time was used. A total of 308 fish with a total weight of 47.9 kg were collected per hour of electrofishing. Nongame species made up 84.3% of the catch by number and 86.3% of the catch by weight. Smallmouth bass scales were analyzed for age and growth.

A creel survey was conducted on Crane Falls Lake from March through December 1995. The survey was conducted by volunteers. Anglers were estimated to have fished 13,601 hours. Anglers harvested an estimated 44% of stocked rainbow trout, and 43.6% was estimated to have been released. The preferred species of fish to catch for 78.5% of the anglers was rainbow trout.

A creel survey was conducted on Cove Arm Reservoir from March through December 1995. This survey was done simultaneously with the Crane Falls survey because the two waters sit in close proximity. Anglers were estimated to have fished 6,173 hours. Total harvest rate was 0.85 fish/h and total catch rate was 1.2 fish/h. Total catch of hatchery trout was 26.8% of stocked trout.

A creel survey of Mountain Home Reservoir was conducted by volunteers in May and June 1995. The survey was canceled in August because of lack of volunteers.

Two trap nets were placed into Sagehen Reservoir on June 1, 1995. A total of 53 rainbow trout were captured in the two nets. No marked trout were found in the nets, although an angler creel check identified two marked trout. The marked trout had been placed in the reservoir in 1994.

Arrowrock Reservoir was sampled with three pairs of gill nets and four trap nets on April 13, 1995. Nongame species predominated the catch. Hatchery rainbow trout were the most numerous game fish captured at 6.7% of the total catch.

A lowland lake survey was conducted on Paddock Valley Reservoir on April 3, 1995. Largemouth bass comprised 95.5% of the standard unit catch.

Deadwood Reservoir was sampled with two pairs of experimental gill nets on September 20, 1995. Mountain whitefish *Prosopium williamsoni* were the most abundant species captured and comprised 72.2% of the total catch. Wild rainbow trout comprised 11.5% of the catch. Kokanee *O. nerka kennerlyi* average length was 244 mm, down slightly from the fall of 1994.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho Program: Fisheries Management F-71-R-20  
Project I: Surveys and Inventories Subproject I-D: Southwest Region  
Job: Title: Rivers and Streams Investigations  
Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Seventeen stream segments were sampled by electrofishing for redband trout *Oncorhynchus mykiss gairdneri* in drainages in southern Owyhee County, Idaho. Stream surveys were conducted on the South Fork Owyhee, Little Owyhee, Owyhee, West Fork Bruneau, and Jarbidge rivers and Marys, Blue, Little Blue, Shoofly, and Sheep creeks. Seven of the 17 stream segments sampled contained redband trout. Redband trout densities for all size classes of trout ranged from 0.08 to 1.82 trout/100 m<sup>2</sup>.

Habitat data were also collected on the sampled stream segments. Data collected included stream depth, stream width, gradient, and composition of substrate. Measurements of bank stability, stream shading, and available trout habitat were also collected.

Basic water quality parameters of water temperature, pH, conductivity, hardness, and alkalinity were all within acceptable ranges for trout survival. Recording thermographs were placed in Jordan Creek from June until November 1995. Maximum water temperature recorded was 24.6°C on July 16, 1995.

It is recommended that redband trout surveys be continued to better define the distribution of the desert populations of redband trout.

Routine electrofishing sampling was conducted on six stations on the Boise River within the city of Boise. A general rebound in fish densities was noted. Densities (number fish/100 m<sup>2</sup>) increased in all areas for all game fish from 1994 to 1995.

A simple electrofishing survey of the Snake River within the Southwest Region was conducted in the summer of 1995. The Snake River was divided into three sample sections which allowed data comparison with an older survey. Catch in 1995 was generally much lower than 1974. Differences in species composition and percent of game fish were noted.

Electrofishing was conducted on the South fork Boise River below Anderson Ranch Dam on April 4, 1995. Trout and mountain whitefish *Prosopium williamsoni* captured were collected and taken for testing of whirling disease. Both rainbow trout *O. mykiss* and mountain whitefish tested positive for the disease.

Seventy-three rainbow trout were collected by angling to test for whirling disease on the South Fork Payette River below the Deadwood River. Most fish were sacrificed for disease testing. Whirling disease testing was negative for this fish sample.

A creel survey was conducted on the Boise River on an 11-mile stretch within the city limits of Boise, Idaho. The survey covered the period March 1, 1994 through February 28, 1995. The river was stratified into five count sections. Angler counts and angler interviews were conducted by volunteers. A total of 77,881 hours of angling was estimated to have occurred in that year. Anglers were estimated to have caught (kept or released) a total of 52,406 fish during the survey period. Rainbow trout represented 69.7% of this catch. Estimated total catch for all fish species for all sections was 0.67 fish/h. Harvest rate was estimated to be 0.21 fish/h. Harvest of hatchery trout was estimated to have been 27% of total trout planted; total catch of hatchery trout was estimated to be 68% of total planted. In a 1986 survey estimate, 81 % of the hatchery trout were harvested in the Boise River. Average completed trip length was 1.44 hours for all areas combined.

A creel survey was conducted on the Middle Fork Boise River from July 1, 1995 to September 30, 1995 from the Willow Creek Campground to the end of the road above Atlanta, Idaho. Volunteers collected all data. Anglers were estimated to have fished 9,287 hours in the three-month period. A total of 7,885 fish were estimated to be caught (kept and released) during the survey. A total of 1,839 wild rainbow trout, hatchery trout, and mountain whitefish were harvested in the period. Average trip length was estimated to be 2.1 hours and the estimated fishing days was 4,422. Exploitation of hatchery trout was low and varied from 9.6% to 15.6% depending on stream section. It is recommended that numbers of catchable trout be reduced in the stocking areas.

Standard stream surveys were conducted in the Southwest Region to document the status of redband trout. Fifty surveys were completed. A database was developed in ACCESS to allow a standard report to be easily produced.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Regional fisheries staff conducted snorkel surveys for chinook salmon *Oncorhynchus tshawytscha* parr monitoring in Bearskin, Elk, and Sulphur creeks in 1995. A total of 0, 68, and 0 chinook salmon parr were observed in the parr monitoring sites of Bearskin, Elk, and Sulphur creeks, respectively.

Salmon spawning ground surveys were conducted in Bear Valley, Elk, and Sulphur creeks trend areas on August 28-31 and September 1, 1995. Redds numbered 9, 0, and 1 in Bear Valley, Elk, and Sulphur creeks trend areas, respectively. Redd count trend areas in 1995 were 90.0%, 0%, and 200% of trend data area counts in 1994 for Bear Valley, Elk, and Sulphur creeks.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project II: Technical Guidance

Subproject II-D: Southwest Region

Period Covered: July 1, 1995 to June 30, 1996

### ABSTRACT

Regional fisheries staff continue to provide a large amount of information about regional and statewide fisheries to the general public. Staff coordinated with the Natural Resource Policy Bureau Staff Biologist on comment letters on various topics. Regional staff presented Governor Philip E. Batt's Bull Trout Conservation Plan at several open houses. One paper was published.

Allen, D.B., B.J. Flatter, and K. Fite. 1996. Redband Trout (*Oncorhynchus mykiss gairdneri*) Population and Habitat Surveys in Southern Owyhee County, Idaho. Idaho Bureau of Land Management, February, 1996.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project IV: Population Management

Subproject IV-D: Southwest Region

Period Covered: July 1, 1995 to June 30, 1996

### ABSTRACT

Fish populations and fishing in the Southwest Region (including the McCall Subregion) were enhanced by stocking approximately 898,300 fry and fingerling fish, and 779,100 catchable size trout. Additionally, approximately 500 largemouth bass *Micropterus salmoides* were removed from Paddock Valley Reservoir and transported to Lake Lowell to enhance bass spawning potential.

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**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
MAGIC VALLEY REGION (Subprojects I-E, II-E, IV-E)**

- PROJECT I. SURVEYS AND INVENTORIES**  
    **Job a. Magic Valley Region Mountain Lakes Investigations**  
    **Job b. Magic Valley Region Lowland Lakes Investigations**  
    **Job c. Magic Valley Region Rivers and Streams Investigations**  
**PROJECT II. TECHNICAL GUIDANCE**  
**PROJECT IV. POPULATION MANAGEMENT**

**By**

**Charles D. Warren, Regional Fishery Biologist  
Fred E. Partridge, Regional Fishery Manager  
Karen A. Frank, Fishery Technician**

## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-E: Maqic Valley Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Upper and Lower Box Canyon lakes were gillnetted on August 21 and 22, 1995. Upper Box Canyon Lake yielded 4 bull trout *Salvelinus confluentus* and 18 brook trout *S. fontinalis*. Brook trout lengths ranged from 85 mm to 230 mm, with a mean length of 183 mm. Bull trout lengths ranged from 350 mm to 450 mm, with a mean length of 395 mm. No fish were collected, although two were observed in Lower Box Canyon Lake. Limnological data and bathometric profiles were recorded at Lower Box Canyon Lake.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Using nighttime midwater trawling techniques on Anderson Ranch Reservoir, we estimated kokanee *Oncorhynchus nerka kennerlyi* densities to be 1.9 fish/ha for age 0+ fish, 11.2 fish/ha for age 1 + fish, and 24.6 fish/ha for age 2+ fish. We walked kokanee spawner trend surveys on the upper South Fork Boise River to count a total of 7,525 adult fish in 1995, the highest number observed since counts began in 1989.

A standard lowland lake survey was conducted on the Burley Gravel Pit Pond. Several warmwater game fish and nongame fish species were sampled. Continuously recording thermograph results for the period from July through September indicate that conditions are not suitable for trout survival at that pond.

Marked largemouth bass *Micropterus salmoides* of various size classes were stocked into Lower Salmon Falls Reservoir from a small private pond in July and August 1995. Three months after stocking, 39 largemouth bass were sampled by electrofishing from the reservoir, with 28% of them recaptured from the fish plant.

Electrofishing at Thorn Creek Reservoir indicated good numbers of three size classes of hatchery rainbow trout *O. mykiss* present including fish from a steelhead fry plant earlier in the year.

An intensive creel survey on Salmon Falls Creek Reservoir estimated total daytime fishing effort to be 72,721 hours from May 27 through November 10, 1995. An estimated 48,000 fish, which included about 2,900 walleye *Stizostedion vitreum* and about 11,300 rainbow trout, were harvested within that period.

Author:

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Whirling disease parasite *Myxosoma cerebralis* was confirmed to be present in late winter 1995 samples of wild rainbow trout *Oncorhynchus mykiss* from Warm Springs Creek, a tributary to the Big Wood River, and near Hailey in the Big Wood River. An early fall population assessment of fish at sites studied in previous years indicate that several year classes of wild rainbow trout are present within all reaches studied. The presence of the whirling disease pathogen within the Big Wood River drainage has not appeared to impact the trout population at any site there.

Billingsley Creek was electrofished on two days within the Wildlife Management Area. Fish sampled included good numbers of rainbow trout and brown trout *Salmo trutta*, numerous Utah chubs *Gila atraria*, and a few redbreast shiners *Richardsonius balteatus*.

Thousand Springs Creek was electrofished to assess the fish population there and to determine whether or not the trout were preying on native fish species, including Shoshone sculpin *Cottus greenei*. Fish sampled included rainbow trout, mountain whitefish *Prosopium williamsoni*, and seven nongame fish species which are not typically piscivorous. Sixteen of the larger trout were sacrificed for stomach analysis with results indicating that none had recently consumed a vertebrate prey item.

We assisted the Idaho Department of Environmental Quality with 22 stream surveys for their Beneficial Use Reconnaissance Project. Their sampling included fishery surveys on streams throughout the region.

Author:

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project II: Technical Guidance

Subproject II-E: Magic Valley Region

Contract Period: July 1, 1995 to June 30, 1996

### **ABSTRACT**

Magic Valley Region fishery management personnel furnished verbal and written comments of technical guidance to other agencies, consultants, and private individuals and organizations. Fishing information was provided to anglers in the forms of brochures, angler guides, public meetings, news releases, telephone, and in person.

Many miscellaneous activities were commented on, participated in, or otherwise addressed, and numerous meetings regarding fisheries were attended.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project IV: Population Management

Subproject IV-E: Magic Valley Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Fish populations and fishing in the Magic Valley Region were enhanced by stocking approximately 2.0 million put-and-grow and 0.6 million put-and-take size fish into lakes, reservoirs, rivers, and streams accessible by vehicle. Mountain lakes were stocked with 5,500 Henrys Lake cutthroat trout *Oncorhynchus clarki* and 4,800 Arctic grayling *Thymallus arcticus fry*.

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**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
SOUTHEAST REGION (Subprojects I-F, II-F, III-F, IV-F)**

- |                     |   |
|---------------------|---|
| <b>PROJECT I.</b>   | <b>SURVEYS AND INVENTORIES</b>                            |
| <b>Job b.</b>       | <b>Southeast Region Lowland Lakes Investigations</b>      |
| <b>Job c.</b>       | <b>Southeast Region Rivers and Streams Investigations</b> |
| <b>PROJECT II.</b>  | <b>TECHNICAL GUIDANCE</b>                                 |
| <b>PROJECT III.</b> | <b>HABITAT MANAGEMENT</b>                                 |
| <b>PROJECT IV.</b>  | <b>POPULATION MANAGEMENT</b>                              |

**By**

**Richard J. Scully, Regional Fishery Manager  
James Mende, Regional Fishery Biologist  
Marc Arms, Fishery Technician  
Mary Rosen, Biological Aide**

## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-F: Southeast Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

We continued a three-year-long creel survey through July 1995 at Chesterfield Reservoir to evaluate the performance of catchable and fingerling rainbow trout *Oncorhynchus mykiss* stocked in 1992, 1993, and 1994. Survival was extremely poor for 1994 fall stocked fingerlings, followed by excellent survival and growth of 1995 spring stocked catchables.

We cooperated with the Eagle Rock Bass Club to allow bass fishing tournaments at Condie and Glendale reservoirs, both of which are special regulation bass waters. In return, bass club members agreed to hold all captured bass in their live wells until fisheries personnel came by to collect them. Bass club members kept their largest five bass until the end of each tournament to be weighed for their contest, after which they gave these fish to fisheries personnel to be weighed, measured, and examined for age determination. These tournaments allowed fisheries personnel to get a good picture of the size composition of fishable size bass in these specially managed reservoirs. More than 3/4 of the bass captured during both tournaments exceeded 305 mm in length. In Condie Reservoir, which has had a 508 mm minimum size regulation since 1990, 10% of the bass caught exceeded 406 mm in length.

We sampled McTucker Ponds to determine how the new warmwater fisheries are developing after the 1992 renovation and restocking in 1993 with largemouth bass, bluegill, and channel catfish *Ictalurus punctatus*. There are large numbers of young bass in the ponds and an abundance of small bluegill which should grow to harvestable size in 1996 or 1997. High water in the spring of 1993 provided access for rough fish to two of the ponds from McTucker Creek. Gill net samples contained Utah suckers *Catostomus ardens* and Utah chubs *Gila atraria* from the two ponds. Abundant bass should prevent these species from dominating the fish community in the next few years.

Grace Hatchery personnel operated a trap on the upper Blackfoot River to monitor Yellowstone cutthroat trout *Oncorhynchus clarki bouvieri* spawners migrating

from Blackfoot Reservoir. Over 1,700, 381 mm to 584 mm spawners were counted during the April and May migration. Water temperatures were generally less than 10°C. These low temperatures were favorable for cutthroat trout migration and inhibited migration of sucker spawners. Total numbers of cutthroat spawners were probably near 2,000 since the trap was over topped with high run-off water for four days during the middle of the spawning migration.

We placed recording thermographs in the Blackfoot Reservoir. Daily mid-summer maximum temperatures were generally less than 22°C and daily mid-summer minimums were generally less than 19°C. Temperatures dropped below 16°C in mid-September and approached 10°C by early October.

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## 1995 ANNUAL PERFORMANCE REPORT

State of : Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-F: Southeast Region

Job:

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

We installed a continuous temperature recording thermograph (logger) on the Portneuf River near Pocatello on July **5**, 1995 at the downstream end of the Edson Fichter Nature Center. Water temperature ranged from 20°C to 26°C throughout the month of July. August temperatures were slightly cooler, ranging from 17°C to 26°C with most daytime temperatures below 23°C. These are very high stream temperatures and would have serious negative effects on trout survival. Major irrigation withdrawals, return flows from agricultural fields, turbidity, high width:depth ratios, and reduction of riparian cover all contribute to the high water temperatures.

We electrofished four 400-m sections of Marsh Creek on the Arimo Ranch, two inside and two outside exclosures. Of the 95 fish collected, 83% were suckers and 7% were carp. Only two trout were collected. Temperature loggers were established July 15 at the upper and lower end of the Arimo Ranch, about four stream miles apart. Temperatures at both sites ranged from 16°C to 22°C during July, and from 13°C to 23°C during August. Temperature, habitat, and fisheries time series data will be collected for up to ten years.

We electrofished two 1.6-km-long trend reaches of the upper Portneuf River. Wild cutthroat trout *Oncorhynchus clarki* density and size structure were much improved from those observed during the recent drought. A combination of riparian fencing projects, a reduction in soil erosion, and the 203 mm to 406 mm protected slot limit for cutthroat trout contributed to the increase in cutthroat trout populations.

We electrofished Crow Creek to obtain additional information of the effects of the 203 mm to 406 mm cutthroat trout slot limit. Of cutthroat trout at least 203 mm long, 17% ranged from 305 mm to 406 mm. For brown trout *Salmo trutta* at least 203 mm long, 44% ranged from 305 mm to 457 mm long.

We operated a trap on the lower St. Charles Creek (Little Creek branch) in the spring to count Bear Lake cutthroat trout spawners. Only 46 spawners were counted at the trap prior to high water in early June, which required removal of the trap. The

late, cool, and wet spring may have caused the trout to migrate late. Similar spawner reductions were reported at the Swan Creek trap in Utah.

We conducted habitat and snorkel surveys in two sections of lower St. Charles Creek (Little Creek branch) during mid-summer to estimate fish population densities, relative species composition, and length frequency composition. The two sections totaled 366 m in length and 2,234 m<sup>2</sup> in area. We observed 96 brook trout *Salvelinus fontinalis* and 32 cutthroat trout in these sections. Approximately 3/4 of the trout in this critical Bear Lake cutthroat trout stream are brook trout. This finding is similar to that seen in electrofishing samples conducted by Utah State University on upper St. Charles Creek in 1995. Part of the program to rebuild the wild cutthroat trout population in Bear Lake may include a significant reduction of brook trout from St. Charles Creek.

We estimated fish population density in about 2.4 km of the lower Blackfoot River where it runs through the Reed Ranch. A fair population of cutthroat trout (103/km) and mountain whitefish *Prosopium williamsoni* (330/km) occurred within the reach. Out of 54 cutthroat trout sampled, only one was less than 203 mm long, indicating that this area is not a nursery area for juvenile cutthroat trout or that there is little spawning habitat in the area. Of the 53 cutthroat trout at least 203 mm long, 83% ranged from 305 mm to 457 mm with most being 305 mm to 381 mm long. The landowners have been restoring the riparian habitat in this reach and wanted to see how many fish were using the area.

We established temperature loggers on July 13, 1995 in the upper Blackfoot River and its tributary of Angus Creek on the Blackfoot Wildlife Management Area (WMA). Water temperatures ranged from 9°C to 19°C in July at the upper end of the WMA and from 12°C to 20°C at the lower end of the approximately 11 km long WMA. Water temperatures in Angus Creek, which enters the Blackfoot River mid-way through the WMA, ranged between 11°C and 24°C, significantly higher than in the Blackfoot River. The daily temperature fluctuations were wide, with temperatures during most of the diel cycle being well within the desirable salmonid temperature range below 20°C.

We electrofished two 1-km sections of the upper Blackfoot River at the upper and lower ends of the WMA. Out of 285 fish collected, 6 were brook trout. The remaining 98% were Yellowstone cutthroat trout. Population densities and mean lengths for cutthroat trout were 1.1 fish/m<sup>2</sup> and 266 mm in the upper section and 0.3 fish/m<sup>2</sup> and 318 mm in the lower. Thirty-seven percent of the fish were greater than 305 mm long.

We estimated Bonneville cutthroat trout density and habitat parameters within seven sections on Preuss Creek and four sections of Giraffe Creek. Fish populations have been monitored since 1981. Peak densities occurred in 1986 and declined precipitously through 1993. Densities increased slightly in 1995. This increase could be a response to a combination of factors. In 1994 and 1995, the Caribou Cattle

Association and Forest Service installed several miles of fences in the low gradient reaches of Preuss and Giraffe creeks to exclude livestock as a means of improving stream habitat. Additionally, 1993 and 1995 were abundant water years in contrast to drought conditions which occurred from 1987 through 1992 and again in 1994. Streams were cooler, larger, and had better habitat than during earlier periods of the trend interval.

Additionally, Warren Clary from the Intermountain Forest Research Center participated in an interagency and grazing association tour to discuss at the stream bank if grazing practices were meeting the criteria described in his publication "Managing Grazing of Riparian Areas in the Intermountain West." In most cases, the criteria were being met with the exception of the lower reach of the right fork of Giraffe Creek.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project II: Technical Guidance

Subproject II-F: Southeast Region

Contract Period: July 1, 1995 to June 30, 1996

### **ABSTRACT**

We reviewed proposals and provided written and verbal comments on activities affecting fish and anglers. We coordinated with personnel of various agencies on hydropower, mining, roading, stream alteration, grazing allotments, National Pollution Discharge Elimination Systems permits, fill/excavation, and other projects. The Southeast Region fisheries personnel worked with anglers to improve rapport and open more lines of communication with agencies and the public. These technical assistance activities accounted for approximately ten days of regional fishery personnel time.

We held public meetings in June and September to obtain public input for the 1996-97 fishing rules. Additionally, regional and bureau staff met to discuss early input from the public and consider biological implications of suggested rule changes. Regional recommendations were passed on to the Fisheries Bureau for presentation to the Commission.

We held eight public meetings early in 1995 to discuss fisheries management programs, the current Five-year Management Plan, and ask for suggestions for the 1996-2000 Management Plan. Consensus from the public was to stay the course of the existing plan. Fisheries updated the drainage text and tables to reflect current and planned fisheries management activities.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project III: Habitat Management

Subproject III-F: Southeast Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

We participated in a National Resources Conservation Service class on stream bank restoration and applied that information in a project on a severely eroded upper Portneuf River bank located on Department property. Thirty state and federal agency employees cabled Hawthorne branches, and used willow bundles, posts and stems in several techniques to protect the section. Willows for the project were cut by volunteer Boy Scout troops.

We worked with the Friends of the Portneuf River and King Creek Grazing Association personnel to shore up fences along the upper Portneuf River where cattle were entering livestock exclosures. Without frequent vigil during the grazing season, until the fences are shown to be livestock proof, fisheries benefits from over \$ 100,000 in capital outlay investments will be nil.

In 1994, a Bonneville cutthroat trout *Oncorhynchus clarki utah* Conservation Agreement for the headwaters of the Thomas Fork of the Bear River was signed by the U.S. Fish and Wildlife Service, Caribou National Forest, Caribou Grazing Association, and the Idaho Department of Fish and Game. Based on this agreement, reaches of stream flowing through highly erosive meadows have been excluded from livestock grazing and less erosive canyon habitat is managed with reduced grazing intensity. In addition to fish population sampling, fisheries personnel participated in field tours to Preuss, Dray, and Giraffe creeks in the drainage with agency and permittee representation. During these trips, participants observed the effects of the new grazing regime and developed suggestions for future improvements.

We worked with landowners and eight AmeriCorps volunteers to install corridor fences along lower St. Charles Creek. Post and pole fences now prevent livestock from entering critical spawning and rearing habitat for Bear Lake cutthroat trout on properties owned by three landowners. Engineering constructed and installed a self-cleaning fish screen on the lower diversion of St. Charles Creek, and installed a head box at a second diversion point in preparation for installation of a fish screen when funds become available.

We worked with the Portneuf-Marsh Valley Canal Company to obtain challenge grant funds as partial funding for grade control structures in the "outlet canal" of the Portneuf River below Chesterfield Reservoir. This project was completed in November 1995 and will reduce sediment recruitment into the upper Portneuf River. The upper Portneuf River was once one of Idaho's Blue Ribbon trout fisheries before it received large quantities of sediment in the 1980s.

We worked with eight AmeriCorps volunteers to build 183 m of riparian corridor fence along Marsh Creek on the John Hart property near Downey. This is a demonstration project and part of the overall goal of reducing sediment in the Portneuf River drainage.

We worked with landowner Chris Robinson, the Natural Resources Conservation Service, and the Division of Environmental Quality to initiate stream habitat restoration on 4.8 km of Marsh Creek. Fisheries personnel wrote the grant application and coordinated with the landowner and other agencies to construct riparian corridor fences, establish photo points, plant willows, and do fish population and habitat surveys. Volunteers and Idaho Department of Fish and Game reservists have been used extensively on this project.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project IV: Population Management

Subproject IV-F: Southeast Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Fish population and fishing in the Southeast Region was enhanced by stocking approximately 551,200 catchable size and 1,385,600 fry and fingerling size salmonids.

We restocked rainbow trout *Oncorhynchus mykiss* into Twin Lakes Reservoir in the spring of 1995 after rotenone renovation the previous fall. Catchable size (229 mm) trout were stocked at 10/ha the first week of May. Trout sampled by electrofishing in mid-September ranged from 300 mm to 381 mm long and were very heavy for their length, indicating that there is an abundant food supply.

We collected over 300 largemouth bass *Micropterus salmoides* and bluegill *Lepomis macrochirus* from Lamont and Winder reservoirs and transferred them to newly renovated Twin Lakes Reservoir. These three reservoirs are in Franklin County. Electrofishing samples this September contained numerous young-of-the-year bass, indicating that the fish stocked this spring had good spawning success. No bluegill were observed in the sample. Although it is likely that some bluegill spawning did occur in Twin Lakes Reservoir in 1995, fisheries will transfer additional bluegill to Twin Lakes in 1996.

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**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
UPPER SNAKE REGION (Subprojects I-G, II-G, III-G, IV-G)**

- PROJECT I. SURVEYS AND INVENTORIES**
- Job a. Upper Snake Region Mountain Lakes Investigations**
  - Job b'. Upper Snake Region Lowland Lakes Investigations-  
Henrys Lake**
  - Job b<sup>2</sup>. Upper Snake Region Lowland Lakes Investigations-  
Island Park Reservoir, Palisades Reservoir, Ririe  
Reservoir, Mud Lake, and Market Lake**
  - Job c'. Upper Snake Region Rivers and Streams Investigations-  
South Fork Snake River**
  - Job c<sup>2</sup>. Upper Snake Region Rivers and Streams Investigations-  
Henrys Fork Snake River Whirling Disease Surveys**
- PROJECT II. TECHNICAL GUIDANCE**
- PROJECT III. HABITAT MANAGEMENT**
- PROJECT IV. POPULATION MANAGEMENT**

**By**

**William C. Schrader, Senior Fishery Research Biologist  
Mark Gamblin, Regional Fishery Manager  
Thomas Herron, Regional Fishery Biologist  
Bruce A. Rich, Regional Fishery Biologist**

## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region,

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

No mountain lakes were surveyed by Idaho Department of Fish and Game personnel in the Upper Snake Region during 1995.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: b' - Henrys Lake

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

From March 1 through May 8, 1995, 11,356 cutthroat trout *Oncorhynchus clarki* (55% male) were counted and marked in the Hatchery Creek spawning run at Henrys Lake. A total of 9,650 cutthroat trout received right pelvic fin clips, and 1,706 cutthroat trout received left pelvic fin clips and jaw tags. Male cutthroat trout averaged 475 mm and females averaged 467 mm. A total of 2,603,551 cutthroat trout eggs were collected during the spawning run.

A total of 3,164 hybrid (cutthroat x rainbow) trout (56% male) were counted and marked in the Hatchery Creek spawning run. A total of 2,576 hybrids received right pelvic fin clips, and 588 hybrids received left pelvic fin clips and jaw tags. Male hybrid trout averaged 582 mm and females averaged 567 mm total length. A total of 2,649,661 hybrid eggs were collected during the spawning run for a total egg take of 5,253,212.

From October 2 through November 3, 1995, the fish ladder was operated on Hatchery Creek for the purpose of collecting brook trout *Salvelinus fontinalis* for spawning. A trap net was deployed from October 24 through October 31, 1995. A total of 505 brook trout (54% male) were collected. Male brook trout averaged 389 mm and females averaged 418 mm total length. Brook trout green eggs totaled 539,735 from 223 females.

The 1995 population estimate of cutthroat trout larger than 350 mm in Henrys Lake was 295,281. The population estimate for hybrid trout larger than 350 mm was 316,046. Angling exploitation rates were estimated at 2.95% for cutthroat trout and 8.24% for rainbow x cutthroat hybrid trout in 1995.

Mean total length of cutthroat trout in the creel was 434 mm with a range of 225 mm to 685 mm. The percentage of cutthroat greater than 508 mm in total length was 8.7%. Mean total length of hybrid trout in the creel was 442 mm with a range of 241 mm to 762 mm. The percentage of hybrid trout greater than 508 mm in total

length was 20.6%. Mean total length of brook trout in the creel was 431 mm with a range of 305 mm to 590 mm. A total of 27.2% of brook trout examined in the creel were greater than 457 mm.

Angling pressure was estimated to be 172,646 hours in 1995. Idaho residents accounted for 65% of anglers on Henrys Lake. Boat anglers made up 52.6% of fishermen, float tubes comprised 25.1%, and bank anglers comprised 22.3%. Bait fishing accounted for 38% of fishing methods, lure fishing was 25%, and fly fishing comprised 37%.

The estimated catch was 99,286 fish. The overall season catch rate was 0.58 fish/h with an estimated season harvest of 20,627 fish. Of fish caught, 79% were released.

Gillnetting effort consisted of one net night per location at six locations. A total of 31 cutthroat trout, 25 hybrid trout, and 2 brook trout were captured. No Utah chubs *Gila atraria* were captured. Due to equipment problems, no purse seining was conducted on Henrys Lake in 1995.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: b<sup>2</sup> - Island Park Reservoir,  
Palisades Reservoir, Ririe  
Reservoir, Mud Lake Market Lake

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Fishing success at Island Park Reservoir was modest with an average catch rate of 0.4 fish/h.

The kokanee salmon *Oncorhynchus nerka kenner/yi* spawning run included at least 1,500 adult fish from the reservoir that ran up the Upper Henrys Fork. Spawning run males and females ranged in length from 450 to 535 mm and 430 to 495 mm, respectively. A lowland lake survey revealed increasing catch-per-unit-effort and proportion of nongame fishes in the survey sample.

Electrofishing effort at Market Lake Wildlife Management Area captured representatives of multiple age classes of yellow perch *Perca flavescens* and many Utah chub *Gila atraria*.

Dissolved oxygen monitoring at Mud Lake in late winter showed a severe hypoxic condition in all areas of the lake except a small refuge area along the northeastern shoreline. A subsequent lowland lake survey conducted in unfavorably high water conditions produced many young-of-the-year and yearling yellow perch. We believe a partial winterkill of more sensitive species likely occurred.

The kokanee spawning run at Big Elk Creek was not a public relations or enforcement problem as in 1994 when extremely low water levels exposed spawners to view as they swam upstream in the dewatered Big Elk Creek sub-impoundment. Kokanee trawling again failed to produce a kokanee, but Mysis shrimp were collected.

Bass tournaments at Ririe Reservoir had poor catch rates (-0.1 fish/h) but typical for the fishing since 1992. Kokanee trawling captured only 28 fish with a mean length of 140 mm.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: c' - South Fork Snake River

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

In the South Fork Snake River, a total of 1,303 new trout were captured during four days of electrofishing at the Palisades section in September 1995. Trout species composition and relative abundance were wild and hatchery cutthroat trout *Oncorhynchus clarki* (60%), wild rainbow and hybrid trout *O. mykiss* (33%), wild brown trout *Salmo trutta* (7%), lake trout *Salvelinus namaycush* (< 1%), and kokanee salmon *O. nerka kennerlyi* (<1%). A total of 1,635 new trout were captured during four days of electrofishing at the Conant section in October 1995. Trout species composition and relative abundance were wild and hatchery cutthroat trout (69%), wild rainbow and hybrid trout (16%), and wild brown trout (16%).

Brown trout relative abundance at Palisades has varied from 4% to 31 % since 1987, the first year of electrofishing. Relative abundance at Conant has varied from 7% to 19% since 1982, the first year of electrofishing. There is no apparent trend at either section.

Cutthroat trout relative abundance at both Palisades and Conant was at an all-time low in 1995. In contrast, rainbow and hybrid trout relative abundance was at an all-time high at both sections. We consider these continuing trends a serious threat to the genetic integrity and long-term viability of wild cutthroat trout populations in the South Fork.

At the Palisades section, length frequency distributions for each species show strong age 1 groups, possibly reflecting benefits of screening a major irrigation diversion in Palisades Creek in 1994. At Conant, strong age 1 groups of rainbow, hybrid, and brown trout are apparent, but not cutthroat trout. We cannot explain a relative decline in large rainbow, hybrid, and brown trout at either section since the late 1980s.

At Palisades, average length was 315 mm for wild and hatchery cutthroat trout, 262 mm for rainbow and hybrid trout, 279 mm for brown trout, and 295 mm for all species combined. Quality Stock Density (QSD) was 30.7% for wild and hatchery cutthroat trout, 14.0% for rainbow and hybrid trout, 4.6% for brown trout, and 23.6% for all species combined. Our QSD management goal of 20% has been met for cutthroat trout and all species combined.

At Conant, average length was 351 mm for wild and hatchery cutthroat trout, 277 mm for rainbow and hybrid trout, 287 mm for brown trout, and 328 mm for all species combined. QSD was 21.2% for wild and hatchery cutthroat trout, 10.6% for rainbow and hybrid trout, 15.8% for brown trout, and 18.7% for all species combined. Our QSD management goal of 20% has been met for cutthroat trout but not for all species combined.

At Palisades, estimated density of age 1 and older fish was 90 fish/ha for wild and hatchery cutthroat trout, 85 fish/ha for rainbow and hybrid trout, 7 fish/ha for brown trout, and 169 fish/ha for all species combined. Density is at an all-time high for each species and for all species combined, probably reflecting benefits of screening a major irrigation diversion in Palisades Creek in 1994.

At Conant, estimated density of age 1 and older fish was 172 fish/ha for wild and hatchery cutthroat trout, 38 fish/ha for rainbow and hybrid trout, 41 fish/ha for brown trout, and 239 fish/ha for all species combined. Unlike Palisades, density of cutthroat trout is at an all-time low since 1986, but higher than the 1982 estimate prior to special regulations. Density of rainbow and hybrid trout is at an all-time high. Brown trout density is in the range of past years.

The brown trout redd count was not conducted in 1995 due to unavailability of aircraft.

For each species, cross-sectioned otoliths provided a greater range of ages compared to using scales or surface-read otoliths. We aged cutthroat trout to 9+, rainbow and hybrid trout to 7+, and brown trout to 5+ using cross-sectioned otoliths, compared to 4+, 5+, and 4+ using scales, and 5+, 4+, and 3+ using surface-read otoliths, respectively. Over all species, two-thirds (66%) of our paired samples of scales and surface-read otoliths agreed to age; fewer (59%) of our paired samples of scales and cross-sectioned otoliths agreed to age. Most disagreement was from otoliths being assigned older ages than scales. We do not recommend surface-aging otoliths in the future and are unsure about aging scales. For all species, age 1 and older fish were corroborated using cross-sectioned otoliths and length frequency distributions.

Population trends described in this report presuppose that we can accurately and protein

gel electrophoresis to test this presupposition. Species identification in the field (based on morphology) did not match identification in the lab (based on genetics) for 23% of our sample (n = 60). However, most identification error was between rainbow and hybrid trout, which we eventually grouped, and did not significantly affect the population trends we describe. Lab data also confirms that hybridization is occurring in the South Fork and hybrids are fertile.

Presence of the whirling disease parasite *Myxobolus cerebralis* was confirmed positive for rainbow trout collected at the Palisades section in 1995. Lab results were presumptive positive for hybrid and cutthroat trout, but negative for mountain whitefish and brown trout. If there are population impacts from presence of the parasite, they have yet to be manifested in the South Fork.

Significant numbers (208) of wild cutthroat trout fry were captured moving downstream in Rainey Creek from mid-September to early October 1995; fewer yearlings (8) and no adults were captured. We do not know to what extent outmigration occurred prior to or after these dates when the traps were not operating. Most fry movement occurred at night. The average size of all captured fish was 43 mm, but the median was 30 mm (n =216). Timing, sizes, and relative numbers outmigrating were similar to 1994.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: c<sup>2</sup> -Henrys Fork Snake River  
Whirling Disease Surveys

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

An intensive on-the-water creel survey on the Henrys Fork of the Snake River above Island Park Reservoir produced a total fishing pressure estimate of 27,346 hours for the opening day through the Labor Day weekend period. This stretch continues to rate as one of the most heavily fished stream reaches in Idaho at 836 angler h/ha. The estimated catch rate of 0.8 fish/h was identical to that reported in the last intensive survey on this reach (1988). Hatchery catchable rainbow trout *Oncorhynchus mykiss* provided the majority of the fishing, followed by brook trout *Salvelinus fontinalis*. Wild rainbow trout were insignificant in the catch. Angler satisfaction was good.

An electrofishing population survey on the Box Canyon Reach of the Henrys Fork resulted in an estimated population size of 5,900 (2.0/100 m<sup>2</sup>) wild rainbow trout over 150 mm in length. This represents a continued decline in numbers since the population spike of fall 1993 which resulted from large numbers of reservoir fish entering the river when the reservoir was drained and renovated in fall 1992.

"Whirling disease" sampling throughout the region detected presence of the disease organism in at least one salmonid species in all drainages checked except the Henrys Fork above Mesa Falls.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project II: Technical Guidance

Subproject II-G: Upper Snake Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Technical guidance was provided to federal, state, county, municipal, and private agencies/entities upon request. Technical guidance was also provided to organized sportsmen's groups, conservation organizations, and private citizens in the form of fish pond development, stocking and management advice, funding requests and project feasibility opinions, and various conservation and educational programs.

Upper Snake Region and fishery research staff also organized and conducted a "Trout Management Workshop" for members of the Henrys Lake Foundation and other citizens interested in the Henrys Lake fish management program. This workshop modeled the Henrys Lake trout population and fishery, allowing the attendees to better understand the current fish management program and predicted benefits to the fishery with changes in the current fishing regulations package.

Regional fishery management personnel contributed over 120 man-days to technical guidance requests in 1995.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project III: Habitat Management

Subproject III-G: Upper Snake Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Riparian fencing was completed on Howard Creek and Targhee Creek below Highway 87. Shoreline fencing was completed between Howard and Targhee creeks and off-site watering was installed adjacent to Howard Creek. All projects were conducted on the Diamond D Ranch located on the eastern shore of Henrys Lake. Riparian vegetation supplementation was conducted on Howard Creek on the existing enclosure fencing in cooperation with The Nature Conservancy and volunteers.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project IV: Population Management

Subproject IV-G: Upper Snake Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

At Palisades Reservoir, approximately 500 to 1,000 game fish, including cutthroat trout *Oncorhynchus clarki*, rainbow trout *O. mykiss*, brown trout *Salmo trutta*, lake trout *Salvelinus namaycush*, and mountain whitefish *Prosopium williamsoni* were salvaged from the three dewatered stilling basins and released in the river below. As in 1994, lake trout of a variety of small sizes were seen, further confirming natural reproduction of the species in the reservoir.

Upper Snake and Southwest Regional personnel captured 297 smallmouth bass *Micropterus dolomieu* by electrofishing at Brownlee Reservoir (Woodhead Park). These fish were all fin-clipped and released into Ririe Reservoir to supplement the population there.

We stocked 13 mountain lakes with a total of 23,500 fingerling Arctic grayling *Thymallus arcticus* and Henrys Lake cutthroat trout. All fish were reared at and stocked from Mackay Fish Hatchery. We used the Challis National Forest fire standby helicopter (Bell Jet Ranger) to stock all lakes. The Bell Jet Ranger was far underpowered for the job and should not be considered for that task again. Procedural difficulties with the federal government make private contracting of helicopters for this task a more reliable method in the future.

In addition to the mountain lake stocking, fish populations and fishing in the Upper Snake Region were enhanced by stocking approximately 3,396,100 fry and fingerling trout and 318,700 catchable trout.

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DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
SALMON REGION (Subprojects I-H, II-H, III-H, IV-H)**

- PROJECT I. SURVEYS AND INVENTORIES**
- Job a. Salmon Region Mountain Lakes Investigations**
  - Job b. Salmon Region Lowland Lakes Investigations**
  - Job c<sup>1</sup>. Salmon Region Rivers and Streams Investigations-  
Wild Trout Population Surveys**
  - Job c<sup>2</sup>. Salmon Region Rivers and Streams Investigations-  
Idaho Supplementation Study and Parr Monitoring**
  - Job d. Salmon Region Salmon and Steelhead Investigations**
- PROJECT II. TECHNICAL GUIDANCE**
- PROJECT III. HABITAT MANAGEMENT**
- PROJECT IV. POPULATION MANAGEMENT**

**By**

**Mark Liter, Regional Fishery Biologist  
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Mike Larkin, Regional Fishery Manager  
Chip Moller, Fishery Technician**

## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job:

Title: Mountain Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Thirteen mountain lakes were surveyed in the Salmon Region during July and August 1995. Surveys conducted included six in the Bighorn Crags, five in the White Clouds, and two in the Sawtooth National Recreation Area. Each lake was surveyed for use, status of fishery, fish population, and post-stocking strategies.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fishery Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: b

Title: Lowland Lake Investigations,

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

No specific lowland lake studies were conducted in the Salmon Region during 1995.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fishery Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: c' - Wild Trout Population  
Surveys

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

During summer 1995, six tributaries in the Salmon River Drainage were surveyed in order to assess fish populations and size structure of salmonids. Streams surveyed included Horse and Indian creeks, two tributaries to the mainstem Salmon River near Shoup, Idaho, and four tributaries to these streams.

Two streams were sampled by electrofishing using multiple-pass removals to derive population estimates. Age 0 fish (<70 mm) were not included in the population estimates due to their reduced capture probability. These streams were sampled at two sites each. Four streams were sampled by snorkeling. Stream transects were sampled using Idaho's standardized snorkeling techniques (Leitzinger et al. 1993).

Bull trout *Salvelinus confluentus* and cutthroat trout *Oncorhynchus clarki* were the only salmonids sampled in Indian and McConn creeks electrofishing sites. Steelhead/rainbow trout *O. mykiss* and cutthroat trout were the most abundant fish observed in the four Horse Creek drainage streams.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fishery Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: c<sup>2</sup> - Idaho Supplementation  
Study and Parr Monitoring

Title: Rivers and Stream Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Five years of Idaho Supplementation Study and Parr Monitoring activities in the Salmon Region have been consolidated. Twenty-eight tributaries sampled at varying frequencies, primarily to monitor annual juvenile anadromous fish densities, are summarized. All data compiled is from snorkeling surveys with the exception of 1991-93 Lemhi River data, which was surveyed via electrofishing. Densities of fish/100 m<sup>2</sup> are reported for anadromous and resident fish species.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fishery Management F-71-R-20

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

We conducted annual salmon redd counts in the Marsh Creek drainage, Salmon River, Lemhi River, East Fork Salmon River, Pahsimeroi River, and the Yankee Fork Salmon River. This data is included in the annual "Salmon Spawning Ground Surveys" report. Salmon Region's salmon and steelhead investigations are incorporated in a separate, statewide "Salmon and Steelhead Investigations" report.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fishery Management F-71-R-20

Project II: Technical Guidance

Subproject II-H: Salmon Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

During 1995, technical assistance was provided to all state and federal agencies upon request. Comments were submitted to various agencies and private entities concerning stream alterations, bank stabilizations, mining operations and reclamation plans, fish rearing proposals, private ponds, water right applications, grazing allotments, timber sales, highway reconstruction, habitat improvements, bridge construction, and hydropower projects. On-site inspections of proposed, on-going, and completed projects were conducted.

Technical assistance was also provided in the form of angler informational meetings, school presentations, and development of the Salmon Region portion of the 1-800-ASK-FISH program. Also, we responded to the general public in person, by telephone, and by mail to inquiries about fishing opportunities, techniques, regulations, and area specifics.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fishery Management F-71-R-20

Project III: Habitat Management

Subproject III-H: Salmon Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

In November 1995, we provided equipment, labor, and funding (through the Department's Challenge Grant Program) to construct over 10,000 feet of fence on the upper Lemhi River. The fence created a riparian pasture that will limit livestock use to only short periods during the spring and summer protecting critical anadromous and resident fishes' spawning and rearing areas. The fence was designed and constructed with the assistance of the landowner, Shoshone-Bannock Tribes, U.S. Bureau of Land Management, Trout Unlimited, Model Watershed Project, Natural Resource Conservation Service, and the U.S. Forest Service.

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## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project IV: Population Management

Subproject IV-H: Salmon Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

During the summer of 1995, 92 mountain lakes were stocked in the Salmon Region. A total of 35,565 fry were stocked in the Sawtooth Wilderness and Challis National Forest lakes. Species stocked included 7,500 Arctic grayling *Thymallus arcticus*, 8,930 rainbow trout *Oncorhynchus mykiss*, and 18,885 cutthroat trout *O. clarki*. A Cessna 185 fixed-wing aircraft was used to stock Salmon Region lakes in 1995 at a cost of \$29.11 per lake or \$.042 per fish.

Additionally, 25,200 fingerling and 108,200 catchable size trout were stocked region-wide to enhance fish populations and fishing opportunities.

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**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1995 Annual Performance Report  
Program F-71-R-20**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS**

**PROJECT V. COORDINATION**

**By**

**Dexter R. Pitman, State Fishery Manager  
William D. Horton, Resident Fishery Coordinator  
Clark Shackelford, Fishery Technician**

## 1995 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-20

Project V: Coordination

Title: Regional Coordination and Assistance

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

The State Fishery Manager, Resident Fishery Coordinator, and Fishery Technician provided program guidance, coordination, and assistance to fisheries management personnel in eight regions. Midwater trawling to estimate kokanee salmon *Oncorhynchus nerka kennerlyi* abundance was conducted in 10 waters (Payette Lake, Palisades Reservoir, Ririe Reservoir, Anderson Ranch Reservoir, Salmon Falls Creek Reservoir, Redfish Lake, Alturas Lake, Pettit Lake, Stanley Lake, and Spirit Lake). This work is coordinated through the Bureau of Fisheries where all equipment is stored and maintained; however, regional personnel and fish research personnel assisted in sampling, and findings are reported in regional reports and the sockeye investigations report.

Coordination and assistance was also provided through annual work plan meetings, a three-day Fisheries Manager Coordination meeting, Region-Fisheries Bureau Coordination meetings, and numerous smaller meetings. Interstate management coordination included meetings with bordering states of Oregon, Utah, and Wyoming. Interagency coordination meetings were held with federal land management agencies, other state agencies, the U.S. Fish and Wildlife Service, and the Columbia Basin Fish and Wildlife Authority-Resident Fish Committee.

White sturgeon *Acipenser transmontanus* catch information, angler effort, and population status was summarized from a mail survey to 5,691 permit holders. Only 3,038 permit holders responded to the survey (Appendix A). We continued to communicate with sturgeon anglers with a sturgeon newsletter (Appendix B). Unexpanded results from survey respondents (53% of permit holders) estimate anglers spend a minimum of 8,167 days to catch-and-release 5,762 sturgeon in Idaho.

The Bureau of Fisheries also coordinated the issuance of 155 permits for fishing tournaments. Mandatory report forms for these tournaments have been filed for future trend analysis. Scientific collecting permits were issued to approximately 200 individuals for the study of aquatic species. Most investigators receiving collecting

permits are resource agency biologists; however, university students and professors, utility companies, timber companies, Indian tribes, and consultants also received permits.

State fishery management coordinated the development of the 1996-2000 Fisheries Management Plan. It was adopted by the Idaho Fish and Game Commission in October 1995. Publication occurred in early 1996.

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## Appendix A.

## 1995 STURGEON MAIL SURVEY RESULTS

TOTAL NUMBER PERMIT HOLDERS	TOTAL NUMBER PERMIT HOLDERS RESPOND.	TOTAL NUMBER PERMITS SOLD	TOTAL PERMITS ON SYSTEM	INDIV. PERMIT HOLDERS AVAIL.
	3038	6228	5771	5691

## UNEXPANDED RESULTS

SECTION	NUMBER ANGLERS	DAYS	NUMBER CAUGHT	DAYS PER FISH	NUMBER CAUGHT LENGTH SIZE 1	NUMBER CAUGHT LENGTH SIZE 2	NUMBER CAUGHT LENGTH SIZE 3
1	211	682	598	1.14	300	178	120
2	533	1417	1115	1.27	<b>462</b>	365	288
3	53	114	107	1.07	18	36	53
4	130	563	187	3.01	14	80	93
5	326	1549	827	1.87	61	515	251
6	568	<b>2842</b>	2099	1.35	396	1211	<b>492</b>
7	138	683	698	0.98	380	<b>269</b>	49
8	2	2	1	2.00	1	0	0
9	0	0	0	0.00	0	0	0
10	0	0	0	0.00	0	0	0
11	83	288	113	2.55	2	<b>42</b>	69
12	16	27	17	1.59	0	6	11
TOTALS		8167	5762		1634	2702	<b>1426</b>

Question 1: Did you fish for sturgeon in 1995? Yes = 57.9% No = 42.1%

Question 2: How many days did you fish in each river section? n = 1759, mean= 4.6, median= 2

Question 3: Did you catch and release one or more sturgeon? Yes = 58.2% No = 41.8%

Question 4: How many sturgeon did you release? mean = 3.28, SEM = .21, median = 1

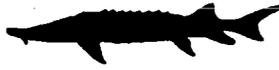
Question 5: How many days did you catch more than one sturgeon? n = 1024, mean = 1.8  
median = 1

Question 6: How many hours did you fish per day? n = 1759, mean = 5.15, SEM = .07  
median = 5

# STURGEON NEWSLETTER

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August 5, 1995



Issue #2

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Earlier this year, Idaho Department of Fish & Game sent all sturgeon permit holders the first "sturgeon newsletter". Many anglers were pleased to receive information about sturgeon fishing, population sizes, and their health. Interest in obtaining information on Idaho Power Company's sturgeon activities in the middle Snake River was also expressed. In response to that interest, Idaho Department of Fish & Game has asked Idaho Power Company biologists to generate a newsletter describing Idaho Power Company's white sturgeon program and a brief overview of the status of sturgeon in the Snake River. This letter is sponsored by Idaho Power Company to inform sturgeon anglers of their research.

## **WHY SAMPLE FOR WHITE STURGEON?**

Idaho Power Company is in the process of renewing federal licenses for many of its hydroelectric projects in the Snake River. This process involves evaluating numerous environmental issues including white sturgeon. Idaho Power Company is currently conducting a white sturgeon survey in the Snake River between C.J. Strike and Swan Falls dams to determine the status of the population. This study is linked to the Idaho Power Company's efforts to renew its federal license for C.J. Strike Dam with the Federal Energy Regulatory Commission which expires by year 2001.

Information regarding the health of these fish, their habitat use and operational influences from C.J. Strike Dam in this section of the Snake River is limited. This study and the sampling guidelines have been developed in cooperation with Idaho Department of Fish & Game and U.S. Fish & Wildlife Service. The survey below C.J. Strike Dam should be completed by the middle of June 1996. Future plans are to continue sampling populations downstream as efforts to relicense the Hells Canyon complex begins. Information gathered during Idaho Power's surveys will be used in the development of future programs to preserve and enhance sturgeon in the Snake River.

## **SAMPLING TECHNIQUES**

Sturgeon are captured primarily with baited setlines, a gear commonly used in sturgeon studies throughout the Columbia River Basin. Setlines are typically fished from the middle of the week for three consecutive days. All setlines are checked daily at regular intervals. Setlines are rigged with a tuna circle hook which is used extensively in similar sturgeon studies and commercial halibut fisheries. The unique shape of this hook prevents fish from swallowing it. In addition to setline sampling, drift nets are occasionally used to supplement the study's effort. Drift nets are checked every 10-60 minutes and are not left unattended. Both systems have proven to be very efficient at capturing sturgeon. We have seen no sturgeon die by using setlines or nets. We strive to maintain this record.

## **CAPTURE AND TAGGING**

Captured sturgeon are measured for length and weight, identified as male or female, tagged and then released. If a sturgeon is greater than 60 inches, a small incision (less than an inch) is made in the abdominal cavity to view gonad tissue and determine the sex and stage of maturity. This incision is sutured together with special thread that dissolves in approximately 4 weeks. Fish that were checked surgically receive antibacterial

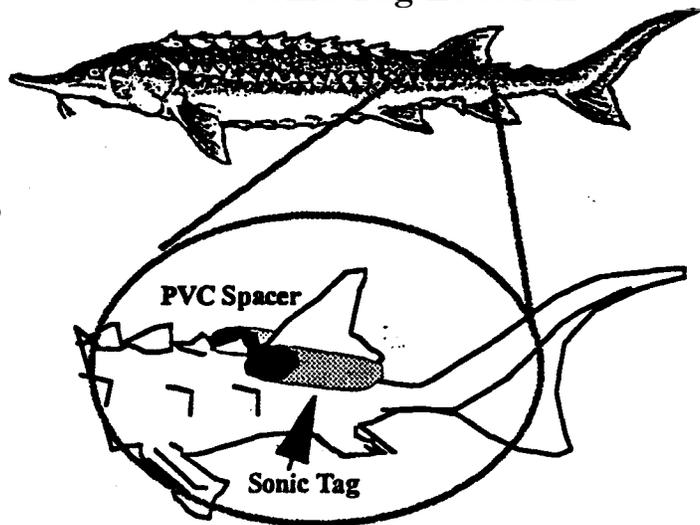
solutions and antibiotics to prevent any infection from occurring.

All captured sturgeon are tagged with a small glass, computer-like chip called a Passive Integrated Transponder (PIT) tag which contains a unique 10 digit code. This tag is about the size of a grain of rice and is implanted in the fish's muscle. It will last throughout the fish's lifetime and cannot be seen or read without a special instrument to energize the tag. By reading this coded tag after the fish is caught again, we can compare information since it's last capture such as age, growth, and movement. Similar tags are used on ocean going salmon and steelhead.

A small number of sturgeon will also receive a sonic tag which is used to monitor individual movement patterns and habitat use on a weekly basis. This tag is mounted externally to the dorsal fin with a PVC spacer to operate as a counter balance as shown in the illustration. These tags provide valuable information regarding a fish's location and weekly activity, especially during spawning intervals. Sturgeon require many years to reach a reproductive age. Female sturgeon may not spawn until they are 15-20 years of age and over 5 feet in length. Female sturgeon can produce over 4 million eggs, depending on their age and size, but typically will spawn only once every 2 to 8 years.

Sturgeon prefer depositing their eggs in fast flowing water. The fertilized eggs then sink to the bottom, where they stick to rocks and other hard substrates. The adults provide no care to the eggs or young. Much about the sturgeon's spawning and incubation habits remains a mystery. Since the actual spawning event is not readily visible, a sonic transmitter attached to a reproductive sturgeon can aid biologists in determining where spawning may occur by tracking the fish to it's spawning grounds. Eggs are then captured at these locations to verify that spawning occurred. Analyzing the development of the incubating egg can also determine when spawning occurred and the conditions that were available.

Sonic Tag Location



### *EGG COLLECTION DEVICES*

Two devices used below C.J. Strike Dam to collect sturgeon eggs are 'egg mats' and 'D-shaped' plankton nets. Egg mats are made of latex filter material attached to an 2 ft x 2 ft. angle-iron frame. These egg mats rest on the bottom of the river and are placed in areas where sturgeon eggs are likely to settle out of the river current. Eggs drifting downstream will settle onto these mats where they then can be retrieved by biologists. The second device, D-shaped plankton nets, are used to filter the water column in areas with higher river flows. The plankton nets are constructed of fine mesh screen attached to a metal hoop frame. The width of the frame is 30 inches. Plankton nets are fished on the bottom of the river in the main channel from an anchored boat or attached to a fixed structure such as C.J. Strike Bridge.

## **OVERVIEW OF PAST SURVEYS**

The abundance of Snake River sturgeon varies considerably by reach with the highest numbers occurring between Bliss to C.J. Strike dams and Hells Canyon to Lower Granite dams (Table 1). However, knowledge of the current status of sturgeon in many sections of the Snake River is limited since the majority of sturgeon research was conducted during the early 1980's. Surveys undertaken by Idaho Power Company will provide valuable updates on the existing condition of sturgeon in the middle Snake River.

Table 1. Numbers of white sturgeon captured in the Snake River from previous surveys.

Location in the Snake River	Year	Catch	Population Estimate	Reference
Shoshone Falls to Upper Salmon Falls Dam	1980-81	9	N/A	IDFG 1981
Upper Salmon Falls Dam to Lower Salmon Falls Dam				
Lower Salmon Falls Dam to Bliss Dam	1980-81 1993	7 38	N/A N/A	IDFG 1981 IPC 1994
Bliss Dam to C.J. Strike Dam	1979-81 1991-93	905 775	2,192 2,554	IDFG 1983 IPC 1994
C.J. Strike Dam to Swan Falls Dam	1979-81 1994-95	9 *224	N/A N/A	IDFG 1983 IPC (unpublished)
Swan Falls Dam to Brownlee Dam	1979-81 1992	1 1	N/A N/A	IDFG 1983 IDFG 1993
Brownlee Dam to Oxbow Dam	1992	2	N/A	IDFG (unpublished data)
Oxbow Dam to Hells Canyon Dam	1992	7	N/A	ODFW (unpublished data)
Hells Canyon Dam to Lower Granite Dam	1972-75	881	8,000-12,000	IDFG/U. of L 1977
Hells Canyon Dam to Lewiston, ID.	1982-83	331	4,275	IDFG 1984
Lower Granite Reservoir	1990-92	946	946-2,166	U. of L/ COE 1994

N/A = estimate not available due to low numbers of sturgeon in the survey      \*224 is preliminary estimate

Idaho Power Company began sturgeon surveys in 1991 downstream of Lower Salmon Falls Dam and Bliss Dam as part of the relicensing process for those hydroelectric projects. The study evaluated the population's status, habitat use and documented where and when sturgeon were spawning. A total of 775 sturgeon ranging in length from 1.7 to 10.9 ft. were sampled between Bliss and C.J. Strike dams. The majority of the fish (84%) in this reach were sampled near the upper half of C.J. Strike Reservoir. Abundance, good fish condition and recorded spawning locations indicated sturgeon in this reach were viable and relatively stable since abundance was similar to an earlier study (1979-81) by Idaho Department of Fish & Game. The study also monitored conditions such as water temperature which can influence spawning success and survival during early life stages. Water temperatures during drought flow conditions in 1992 reached near lethal (64 °F) levels for developing embryos. Due to the abundance of sturgeon in this reach, monitoring spawning activity below Bliss Dam will continue during spring months to compile a data base of

environmental conditions over several years to compare with the success of future year classes of sturgeon.

A similar population assessment between Lower Salmon Falls Dam and Bliss Dam was completed by Idaho Power Company during 1993. Overall abundance in this reach was concluded "low" since only 38 fish were sampled during the 9 week survey. The majority of the fish (31) were sampled in the tailrace of Lower Salmon Falls Dam. Their lengths ranged from 1.4 - 4 ft.

Idaho Power is currently researching sturgeon between C.J. Strike and Swan Falls dams. Preliminary data indicates a small population of sturgeon reside in this reach with the majority of fish concentrated within a few miles of C.J. Strike Dam. Angler catch records have also indicated that 3,675 days were spent during 1994 to catch 1,550 sturgeon below CJ. Strike Dam making this reach the hardest fished section in Idaho (Figure 1)

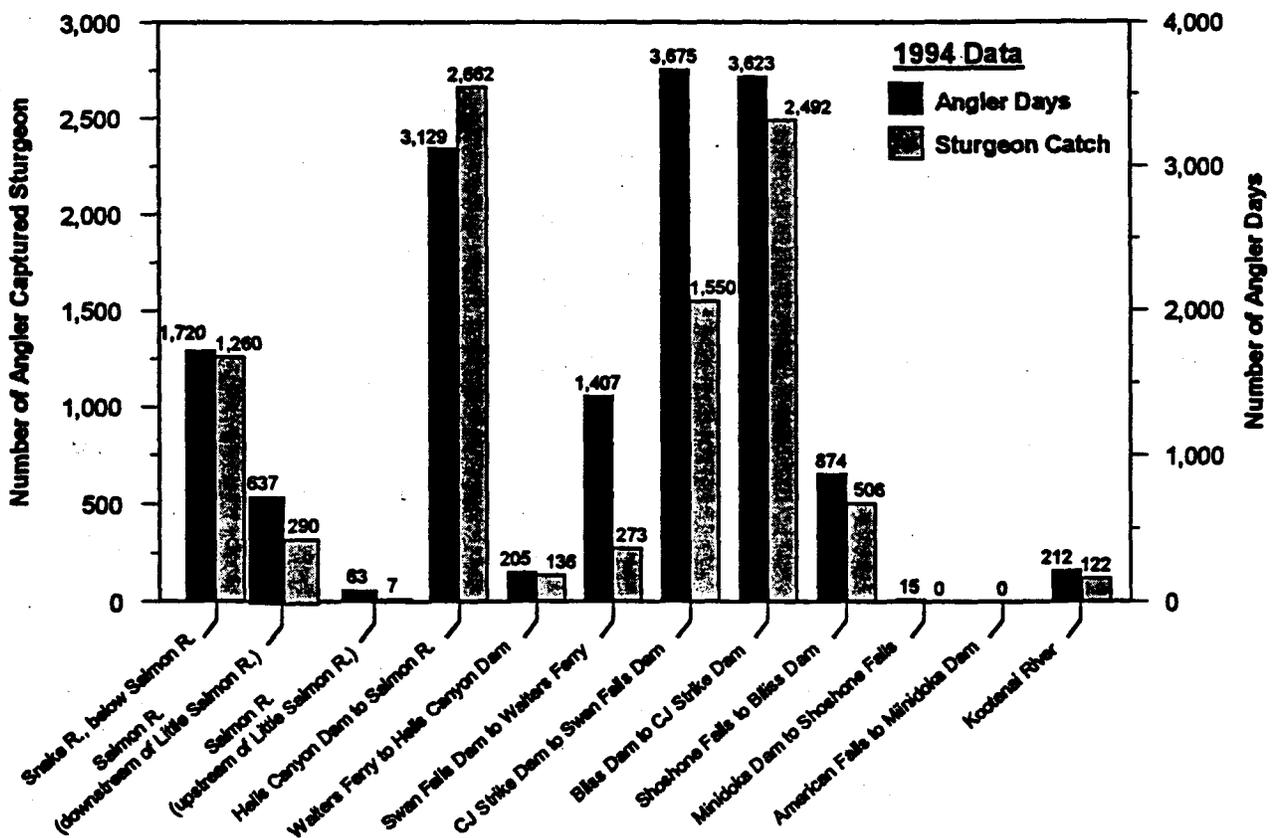


Figure 1. Angler recorded sturgeon catch and days spent fishing in Idaho during 1994.

A third newsletter has been planned for release this fall by Idaho Department of Fish & Game which will include information on the sturgeon hatchery program at the College of Southern Idaho, Twin Falls and the new computerized "point of sale" license vending for 1996 and possible changes for the sturgeon permit. Your cooperation is greatly appreciated during these sturgeon surveys. If you have any information regarding sturgeon activities, please contact the Idaho Department of Fish & Game or Idaho Power's Environmental Department.

**Submitted by:**

See Individual Abstracts

**Approved by:**

IDAHO DEPARTMENT OF FISH AND GAME

A handwritten signature in black ink, appearing to read "Steven M. Huffaker", written over a horizontal line.

Steven M. Huffaker, Chief  
Bureau of Fisheries

A handwritten signature in black ink, appearing to read "Bill Hutchinson", written over a horizontal line.

Bill Hutchinson  
State Fishery Manager